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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/838,866	04/20/2001	Samuel C. Weaver	5564	3291

30058 7590 12/28/2007

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EXAMINER	
NGUYEN, SON T	
ART UNIT	**PAPER NUMBER**
3643	

NOTIFICATION DATE	DELIVERY MODE
12/28/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPPatent@CohenLaw.com
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Office Action Summary	Application No.	Applicant(s)	
	09/838,866	WEAVER, SAMUEL C.	
	Examiner	Art Unit	
	Son T. Nguyen	3643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the Board of Appeals decision filed on 8/27/07, PROSECUTION IS HEREBY REOPENED. A new ground of rejection set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

The Director of Technology Center 3600 or designee has approved of reopening prosecution by signing below:

APPROVED BY
DONALD T. HAJEC
DIRECTOR, TECHNOLOGY CENTER 3600

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1-14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are indefinite due to failure of the claim to indicate with respect to what the vibration damping and stiffness are improved.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (herein AAPA) in view of Weaver (5573607).

AAPA teaches (Applicant's specification, page 1, lines 14-19) that in the past light weight shoes have usually been formed by making a shoe out of a light metal, usually aluminum with steel inserts or calks placed at the points of expected wear. Such shoes, however, have been found to have both poor wear and poor strength characteristics. Generally, use of lightweight metals without inserts in horseshoes has been found to produce the same type of problems: rapid wear and severely reduced strength when compared to the standard steel or iron horseshoes. However, AAPA horseshoe lacks said horseshoe comprising a metal matrix composite that is formed from a molten metal selected from the group consisting of aluminum, magnesium, titanium and mixtures thereof, and from particles of silicon boride composition selected from the group consisting of silicon tetraboride, silicon hexaboride and mixtures thereof, said silicon

boride composition being present in a range from about 0.1 to about 80 weight percent in said molten metal.

Weaver teaches that adding the disclosed silicon boride composition being present in a range from about 0.1 to about 80 % weight as a strengthening agent to molten aluminum, magnesium, titanium and their alloys, thereby forming a metal matrix composite from what otherwise would be a molten metal composition, has the benefit of increasing stiffness, lowering the coefficient of thermal expansion, and increasing strength (col. 1, 11.22-25, 53-57; col. 2, 11.3- 10, 15-16). Therefore, it would have been obvious to one having ordinary skill in the art, through the use of no more than ordinary creativity, would have added Weaver's silicon boride composition strengthening agent to the prior art horseshoe lightweight metal, thereby forming a metal matrix composite, to provide the horseshoe with the desired increased strength (Spec. 1:17-19). See KSR Int'l. Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007)(In making an obviousness determination one "can take account of the inferences and creative steps that a person of ordinary skill in the art would employ."). As disclosed by Weaver (col. 1, 1.24; col. 2, 11.14-15), that composite also would have the improved stiffness recited in the Applicant's independent claims (1 and 9). As for the improved vibration damping recited in the Appellant's independent claims, references need not be combined for the purpose of solving the problem solved by the Appellant. See KSR, 127 S.Ct. at 1742, 82 USPQ2d at 1397 ("[T]he problem motivating the patentee may be only one of many addressed by the patent's subject matter. The question is not whether the combination was obvious to the patentee but whether the combination was obvious to a

person with ordinary skill in the art."); In re Kemps, 97 F.3d 1427, 1430, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996); In re Beattie, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992); in reDillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991). Note that Weaver teaches the particle sizes as claimed in claims 3,4,11,12 in col. 2, lines 38-40, thus, upon relying on Weaver, AAPA would have to include the same particle sizes as taught by Weaver.

AAPA as modified by Weaver is silent about the silicon boride being present in a range from about 10 to about 45 weight % or the silicon hexaboride being present in a range from about 10 to about 45 weight %. It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate about 10 to about 45 weight % of the silicon boride or the silicon hexaboride being present in a range from about 10 to about 45 weight % in the metal matrix of AAPA as modified by Weaver, since it has been held that where routine testing and general experimental conditions are present, discovering the optimum or workable ranges until the desired effect is achieved involves only routine skill in the art. In re Aller, 105 USPQ 233.

Response to Arguments

6. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Son T. Nguyen whose telephone number is 571-272-6889. The examiner can normally be reached on Mon-Thu from 10:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter M. Poon can be reached on 571-272-6891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Son T. Nguyen/
Son T. Nguyen
Primary Examiner
AU3643